Chris Tremper: Good morning everyone. How many of you have read section 432 of EISA? I can see that's why you're here. And those of you who haven't read it, wait until you hear what Congress has in store for you. This is a requirement that not only just affects the folks at agency headquarters, it's going to affect every facility in the government. First, I just want to go over the framework that Congress has established for us for managing energy and water efficiency in our federal facilities.

Agencies are going to be required to identify covered facilities within their agencies that constitute at least 75 percent of that agency's facility energy use. Now each of these facilities is going to have a designated energy manager. These energy managers are going to be responsible for completing comprehensive energy and water evaluations or audits so that all covered facilities are audited and commissioned within a four year period. So that's approximately 25 percent of these facilities per year.

Once these evaluations are completed, you're going to have a list of potential energy and water efficiency projects. I'm going to be referring to them as ECMs. But I'm using that term generically to mean energy efficiency, water efficiency and renewable energy generation projects. So once you have these lists of ECMs, energy managers are going to be responsible for implementing those within a two year period.

And then once the projects are implemented it's not over. Congress would like us to track the savings of those measures through a web based tracking system to ensure that the savings persist through the life of the projects. This web based tracking system will be made available to the public and Congress and will include a list of each facility's potential projects and implemented projects as well as the facility's square footage and some benchmarking data. Some of this data will be excluded from public view based on national security reasons. And lastly, as if that weren't enough, there will be a benchmarking component as well so that you can measure your facility's performance against others of its type.

The statute required DOE to – it had some action items for DOE, as well as an OMB role and some financing nuances to it. The Department of Energy has to develop guidance, which was due actually 180 days after the law was signed. That was June 16. The first two guidelines that were required involved the designation of energy managers and criteria for selecting covered facilities. As well as the evaluations that will need to be undertaken in those facilities.

We have, in the interest of expediency we've combined those two guidance requirements into one document. Which is currently in draft and I'll be discussing some of the details of that.

Other DOE actions include guidelines for implementing the projects, including financing and other funding measures as well as the follow up measures once the projects are implemented. As well DOE will select or develop its own benchmarking system and issue guidance on that as well. Those action items are due one year after the signing of the bill, or in December. So we'll do our best to meet those.

Additionally, OMB has a role in that they – once the system is in place that they are to use the metrics and the information on the tracking and certification system to measure agency's performance on the scorecards. And for the first time these scorecards will be made available to the public and Congress to view.

Lastly, the statute is very clear in that it encourages use of financing mechanisms to accomplish not only the projects but other requirements in the statute. Including energy managers at facilities. And I'll get into those details as well.

The facility energy managers. These folks don't necessarily have to be government employees. They can be a contractor of a facility. And this is in the statue. Energy manager can be a part-time employee of that facility. And the individual or energy manager can be responsible for multiple facilities. The one that we did note in our guidance is that these individuals must meet the statutory definition of a trained energy manager, which first appeared in the Energy Policy Act of 1992.

And if you'll allow me, I'll just go ahead and read what that provision states. "A trained energy manager means a person who has demonstrated proficiency or who has completed a course of study in the areas of the fundamentals of building energy systems, building energy codes and applicable professional standards, energy accounting and analysis, lifecycle costs methodology, fuel supply and pricing and instrumentation for energy surveys and audits." Very generic description.

The one thing that we do recommend, and I stress the word recommend, is that we wanted some clarification on the term course of study. And we took that to mean a completion of 32 course hours.

Each agency may determine their own limits on the responsibility of energy managers. We do provide an example from the US Army. They typically use one energy manager per 5 million square feet of space. Now, if you do the math we have about 3 billion square feet of square footage in the government. If you take 75 percent of that and use this formula we're talking about well over 400,000 designated energy managers out there.

But again, agencies will have – this is just one example of the criteria that can be used. Other agencies may already have structures in place. GSA I believe was considering the level below a regional energy manager as the definition of that. And again, it'll all depend on how your agency is set up.

Now, as I noted, the energy manager doesn't necessarily have to be a federal employee. And they actually can be financed through the use of resource efficiency managers. This is a concept where these folks are typically contractors and they work on site at federal facilities. And they – their salaries are basically covered by the resource savings that they – the result from their work. Typically this approach works for facilities with energy budgets between 3 and 5 million dollars. And smaller sites have been known also to share the services of one REM. Now FEMP does offer a guidebook on how to contract out for these services and I've provide the URL up there.

Now these energy managers are going to need to be designated as well. There was some thought put into this with regard to the web based tracking system that will be coming. And it was suggested that the names of the energy managers not be included on the web based tracking system. But instead each energy manager will be assigned a unique identifier that links him to his facility. This will protect the privacy of these folks. And also it will also double as the user ID for the facility energy managers when they're entering their data on the web based tracking system. If the agency should choose to allow the energy managers to do that. That may be centralized, depending on agency's preference.

The master list that links the energy managers to the covered facilities will be kept by the agency headquarters coordinator or the Interagency Energy Management Taskforce member. And they do have a significant role in executing this requirement.

The headquarters agency coordinator will be responsible for identifying the covered facility inventory. And ensuring that each

of those facilities has an energy manager. They will maintain that list. And they also will probably have a coordinating role in deciding which of the covered facilities are being evaluated and audited in a given year so that they're all evaluated within four years.

For covered facilities, the term covered facilities wasn't specifically defined in the statute. But the term facility is. And as you can see, it's pretty broad. Basically covers any building, installation that is owned, operated, manufactured or leased by the federal government. And a facility, as defined by the statute, doesn't necessarily mean one building. It can include a group of buildings at a single location or numerous buildings that are managed as an integrated unit. Now in the guidance we further clarify this by managed as an integrated operation to mean that these facilities should be serviced by the same utility and energy provider. Contractor or government owned contracting facilities are also included in this definition as well.

Now agencies will have to designate covered facilities so that the total of all these facilities' energy use is at least 75 percent of that agency's facility energy use. Now, this defines – the covered facilities definition is a new way of looking at the facilities. And it's a separate requirement from our current energy intensity reduction goals. So a building that is subject to the energy intensity reduction goal, the 30 percent reduction goal, can be included in these facilities and is recommended if they are, of course. But excluded facilities that aren't subject to that goal may also have to be included as a covered facility for some agencies.

In our guidance we recommend that in trying to figure out which of these facilities we want to be covered under this requirement that you basically rank your facilities in descending order of energy use. Or if you choose, gross square footage. Try to get at the largest facilities until you reach that 75 percent threshold. But we do encourage agencies to include as many facilities in the covered facilities category as you can manage. Because that 75 percent is the minimum requirement.

Well, once you've identified all your covered facilities and assigned all of your energy managers – oh by the way, I should note that OMB is looking for preliminary lists of covered facilities at the end of this year as one of the energy scorecard action items. So again, DOE is sensitive to agencies' concerns about this guidance and getting it out as soon as we can so that you can complete that work.

Once the facilities are identified and the energy managers are assigned then the evaluations and audits should begin. Now these evaluations are not just strictly limited to a typically energy audit. They also have a commissioning component. Which Malcolm will discuss here in a minute.

The timeline for completing the evaluations is four years to complete all the evaluations in all covered facilities. Or approximately 25 percent per year. The first set of evaluations is due June 16, 2009. So less than a year away. We do provide in the guidance a grandfathering provision for those facilities that have been recently evaluated within the last two years, as long as they fulfill all the requirements of the audit and commissioning of the guidance, they can be counted as the first set of evaluations.

Next I'm going to ask Malcolm to discuss the commissioning component of the evaluations and what is in the guidance for that.

Malcolm Verdict: I've been invited to talk about the commissioning section or component of section 432 F3 sub section B. And I'm going to read this, which is directly from the legislation, regarding commissioning evaluations. As part of the evaluation, energy managers shall identify and assess re-commissioning measures, or if a facility has never been commissioned, retro-commissioning measures for each such facility. Basically re-commissioning means a process - and this is from the legislation – of commissioning a facility or system beyond the project development and warranty phases of the facility or system. And the primary goal of which is to ensure optimum performance of a facility in accordance with design or current operating needs over the useful life of the facility while maintaining building occupancy requirements.

Retro-commissioning means a process of commissioning, which is optimizing performance basically, a facility or a system that was not commissioned at time of construction or of the facility or system. There's really no difference in these. It's just a definitional thing. If it's never had any commissioning post construction then you're going to call it retro-commissioning. At least the legislation does. And then re-commissioning means that it's been commissioned once and you're just going to go back and redo it. Redo it again.

The guidance – The DOE guidance, which is still in draft phase, recommends a two step approach for the commissioning evaluations. The first step should be the initial assessment. Some

guidance typically would be four to eight hours per building. Obviously that's going to vary considerably on the size, the complexity, the type of control systems, the number of air handlers, etcetera, etcetera. But that just gives you a feel for how much engineering time that someone's going to have to spend on site to determine the cost and feasibility of going to the next step, which would be the detailed facility assessment for commissioning.

The detail assessment for commissioning can last anywhere from one to four days per building. And there again, depending on the complexity, depending on how it is served, chill water, hot water, etcetera and the controls. For there again, identifying opportunities to improve overall performance, comfort, deferred maintenance issues and identification of preliminary HVAC related retrofit opportunities.

What facilities are good candidates for commissioning evaluations? This is covered in the guidance. It basically keys off of a size requirement. Any building that's over 50,000 square feet that's heated and/or cooled and has a functional building automation system is going to be a very good candidate typically. I mentioned the building automation system. The guidance does because if there really is no controls there, a lot of the things that the commissioning engineer would need to do and want to do to set up schedules and make things operate correctly, you just don't have that capacity. So you're really not going to get the full bang for your buck if that system's not working. In fact, it's one of the first things they look for is to make sure it is working. And if it's not, point out the things that need to be done before you would then go in commission and fine-tune and optimize.

Another good candidate is any energy intensive operation, such as central thermal in power plants, energy intensive facilities such as data center, healthcare facilities and research centers. There is a waiver in the guidance for smaller facilities. If you've got several buildings under 50,000 square feet, and I know there are a lot of those in the federal inventory. There's very few over 100,000 square feet. I knew the number one time. But it's not that large.

But buildings greater than 50,000 square feet are covered. Energy intensity buildings that are greater than 25,000 square feet are covered. So basically the waiver, if you got a smaller building I think that's an automatic exemption as far as the waiver's concerned.

Commissioning evaluations though are very, very different from your typical energy audit. The focus also is not on identifying retrofits. We're there working on the O&M types of things. The deferred maintenance types of things. And making the building perform the way it's currently being used. Optimizing it to its current usage, specialization equipment, etcetera, etcetera, etcetera. And we know that all of these buildings are not static. They're constantly changing. And probably the design intent in the beginning was probably not optimum from that building. For a variety of reasons.

It's typically performed independent of an energy audit. It does not have to be. If it's going to be done at the same time you would have a team to make sure you had the right expertise on the team. Cause they're not going to be out looking for retrofits. They will, when they come in contact with an opportunity that's related to the HVAC, such as VFDs, and they're not there, then there's a lot that you can't do in terms of optimizing that air handling system. And so they will make some initial recommendations. But a detailed audit evaluation cost analysis is typically done by somebody other than the commissioning agent.

The paybacks are very, very nice. I mean how many of you like projects that are typically less than two years? Good show of hands. And you don't really have to finance them for a long period of time. The reason being is these are not capital projects typically, except for the retrofits that you might recommend for VFDs. Which also have very fast paybacks. But the paybacks we typically see in our group that's been doing retro-commissioning since 1990. We have a staff of 30 people. Engineers and students that do this sort of work. And have been in 70 million square feet. And we've been able to add 4 million square feet to our own campus at Texas A&M.

This is not a commercial, but I just tell you how well this works sometimes if you do it diligently and ongoing over time. But we are 18 million square feet now. While we've been doing this the last 11 years we've added 4 million square feet. And our energy use, total KW and BTUs has not gone up. And our energy utilization index has actually dropped. And I can show you the chart where it dropped to 34 percent. So it really, really does work. But you got to stay at it and you got to invest time and money.

Good payback's typically around two years. And as I mentioned earlier, the expertise is typically something that's – it would not be

your typical energy audit. Could be the same, but it's a special set of expertise.

Chris Tremper: For the audit component of the evaluations, we wanted to use a model of something that was already in place and that agencies would rely on as a good resource. So the audit component of the evaluation is based on the ESPC preliminary assessment level audits that you would get from an ESCO if you were pursuing an ESPC. This is also referred to as the initial proposal. These audits typically include findings of a walkthrough survey. The general building conditions and occupancy and equipment in that building.

And then for each energy or water efficiency measure that's identified the audit must contain, of course a description of it, the location in the building that is affected, the projected energy use, cost and savings of the ECM. We also would like to know the extent of any utility interruptions needed for installations of the project, agency support required during that implementation. Any potential environmental impacts or NEPA compliance issues. And any, as part of the price information, any applicable utility rebates or other types of funding that might be available for that particular project or ECM.

Once all the ECMs are identified, they of course need to be prioritized according to lifecycle cost methodology, savings to investment ratio. And the data elements that will likely be put into the web based tracking system would include the estimated cost of the measure, the estimated annual water or energy savings and the cost savings, as well as the lifecycle savings of the project as well as the SIR for ranking the project, the payback period, and then a summary of all of the ECMs combined.

As far as resources for completing the evaluations, of course you could use your government in-house engineering staff to accomplish this. There's also resources that DOE provides through its National Laboratory staff for this type of work. I think most agencies will probably be relying on the private sector to help them with this work. And it can be done either using direct funding on a fee for service basis. GSA's energy management schedule has lists of auditors who can provide this service and I've provided the web site for that.

And ideally too, these services can be financed through either an ESPC or a UESC. Now, if you're going to pursue that route, you just need to consider if you're going to retain an ESCO or a utility

to do your audit that you really intend to finance it and use that ESCO to complete the projects.

As far as the commissioning component, if you're using a financed approach it can be addressed in the detailed energy survey portion of the proposal that is prepared by the ESCO.

Now that is what we've addressed in the guidance so far. And we have a lot ahead. DOE will begin drafting guidance on the implementation of the identified projects. We, in that guidance will include various approaches, whether it's direct funding or financing through ESPC or UESCs. The guidance will also include what is going to be required for the follow up and the measurement and the verification of the projects once they are implemented.

I guess first things first. Let's get our covered facilities identified and our energy managers assigned. And then, you know we'll be moving forward to the point where projects are implemented. The web based tracking system and certification in the benchmarking component of the requirement, we are going to be convening probably three or four working group meetings in the next month or so to address these issues. Typically these invites go out to the agency headquarters coordinators. Or in the Interagency Energy Management Task Force members. If you all would like input into this process, please contact your headquarters folks and give them your ideas. And make sure that we get them.

And we will do our best in getting these guidance documents and this web based tracking system deployed. And to give us some insights on the web based tracking and project tracking system, Karen Curran will now give us some of the insights that she's got at GSA from their project tracking system and their approach to benchmarking.

Karen Curran: I just want to review a little bit again about what the web based tracking requirements are. I think these were touched upon a little bit earlier. The first one that it's supposed to be deployed by December 19, 2008. That it's going to certify compliance for energy and water evaluations. The implementation of these measures. And then obviously the follow up on the implemented measures.

The web based tracking system's going to track our covered facilities. The status of meeting the requirements for compliance. Estimated cost and savings for measures required to be implemented. The measured savings and persistence of savings for

implemented measures. And I think that's a real important one. And then obviously the benchmarking information that we're required to disclose.

One of the things that was in the legislation that GSA really focused in on was the ease of compliance. And you know it specifically said that the government's going to ensure that it's accomplished with streamlined procedures and templates to minimize the demands of federal employees. And I know at GSA our guys are, you know overloaded as it is. And the last thing they need is one more thing to have to take care of. So we're really hoping that we can do everything possible to try to streamline the process for taking care of these requirements. And that it's going to be coordinated with other reporting requirements. So we're hoping that this working group will be able to accomplish that.

The availability of the data. Obviously it's a web based tracking system, which is required to be available to Congress, other agencies and the public through the internet. And then like they touched on this already. The exemptions for national security. And it's only going to apply to covered facilities.

One of our big thoughts that we've gone through is we want to make sure we have all these systems already in place. I mean a couple of databases already in place. And we were hoping to have a simple way to transfer the data that we already collect into the deployed system. We want to hopefully minimize any duplication of effort of how we already input our data into our own systems. And then lastly, we've run into a lot of issues within GSA with our firewall. And HSBD12 issues with our own database. They're inside the GSA firewall. So the publicly available data requirement is going to be a challenge given the IT security issues we've already faced. So that's something this working group's going to have to deal with as it moves forward.

As I said, our current systems that we have that we're looking at to help start off this process are inside the GSA firewall. There are two systems. The EUAS system is the energy usage and analysis system. It records energy and water consumption and cost for all of GSA's buildings that we pay a utility bill for. So it's leased and owned buildings. It categorizes our inventory for ease of reporting on all of our scorecards and the end of reports based on exclude buildings, gold check buildings. And it's got a lot of user friendly reporting for comparisons of previous years.

I would like to point out, there was a presentation given yesterday at Monday's session from 4 to 5 that had a lot of screenshots of that system if you're interested. It was in the utility information management session. So that'll be available on the web.

Our other database that I think I'm going to be talking about more here is the project database. This tracks all of our energy projects from the submission stage when a region submits them to our office for funding all the way through completion. It includes both funded and financed energy projects.

The key thing right now is our database already captures a lot of these required fields that's for the web based certification system. So we do have some current planned enhancements already that we've got the scope and requirements out. We're waiting for final pricing negotiations to be finalized to move forward. But this system is a GSA system, so a lot of our enhancements, although we're going to make sure that any enhancement we do is going to cover all the fields that are going to be required in this new system.

It's also tailored towards a lot of the reporting that GSA has to do outside of these requirements. You know we often get asked different questions about projects we funded in a given fiscal year. Types of projects. How many renewable projects have we funded? How many lighting projects? Things like that. So we also are tailoring our system to make sure it helps us answer those other reporting requirements that GSA gets on a day to day basis.

We envision – the other big enhancement that's happening is envisioning and connecting it with our contracting database. With a direct feed for award dates and substantial completion dates. And those are two really important fields because when we're talking about verifying how much the project saved we need to be able to look at the usage prior to the project, and then obviously the usage post completion. And we have contracting databases that keep these fields accurate. And we don't want to make our guys have to input them twice. So that's one reason why our system is inside the firewall so we can connect into GSA's contracting systems that already have this data available.

These are going to be a couple of screenshots from our database. This is kind of the opening screen that you go to when you're searching for a project. We have several project types available. Fully funded project. Super ESPC. UESC. You can search by those different fields. And then sort. These other ones are building number obviously. And the PCN is an internal GSA accounting

number. But then the status, we search by all the approved projects, all the projects that have been submitted in a given year, the projects that have been approved and have funds available. The projects that were approved but we didn't give them money so the regions found their own money to spend. Being implemented. And then obviously completed projects. And then of course, we have those few that weren't approved for various reasons.

And then once you pull up a sorted list it just brings up a whole list of all the projects that are in that status. With the building name and the building number and things like that. This is one of the areas that we're trying to enhance as well. We want a few more fields available for some summary reporting.

But our regions, we have a regional energy coordinator in all of GSA's 11 regions. And they're the ones who are responsible for putting their projects into the database. And then at the energy center we go in, review the projects. They also have to submit all supporting data for the projects. Usually nine times out of ten that means they're submitting that energy and water evaluation or that commissioning study that was done. And most importantly, the BLCC analysis we require them to do to demonstrate that what they're proposing was the most lifecycle cost effective opportunity.

So I'm just going to go through a couple of the tabs. Once you select a specific project. It's got a – actually, Susan's in the audience. This is one of hers. This is a region three project there in Philadelphia. And so they, you know they put in a lot of the description information. There are some areas for project notes. And as we go through these slides you'll see different fields that are going to be rewired are in different areas. Obviously we have the total energy savings that are predicted, the total amount of the project are both on this page in particular. And the project name.

One of the things we find that's – a lot of our projects are bundled projects. So the names tend to be pretty generic. You know, comprehensive energy project because it's got multiple measures underneath it.

We have a financial tab. And this tab is different for our funded projects than it is for our financed projects. And so here's where they put in the funding requested. The savings resulting from funded amount. And here is where one of our enhancements is going to take place. Because we're going to add some of those more detailed fields that are being required under the guidance for

the total lifetime savings. Those fields that currently aren't in our database we'll be expanding to include those.

And then there's an area for attaching supporting documents. And this has been real useful, although right now with the – we had a firewall issue. And this part of the system's down so we've been keeping a cuff record of the ones that have been sent. But they're able to attach those audits. Or those BLCC analysis. So any time I want to get more information on a project or I get a question from somebody that says, "You know Senator So and So wants to know about the projects we're doing in New Jersey." I can get a lot more supporting information without going back to the field.

The other thing that Chris had asked me to address was what GSA's current benchmarking approach is. And GSA currently assigns regional energy targets to each of our regions. So we're able to utilize the reports we have to compare by region or field office or by building their energy usage for a current fiscal year compared to a baseline year. We're able to sort our building report to compare up to other GSA buildings. So, you know region seven can sort their buildings so they can see who is their highest energy performers or worst energy performers rather with that highest BTU per gross square foot down to their, you know best performers. So they can sort by total usage cost per square foot. Whatever they want to use.

And then we actually have a building benchmarking report that's going to be deployed for testing in what? Two weeks. In that one actually we're – the energy target will be in there so that people will be able to – our people, GSA, will be able to compare their building to their regional energy target. Compare it to CBECS data for office space. That's the only one that we've been able to do a direct link right now. You know our buildings that are directly office spaces. As well as the regional average. So they can – it's just a one page snapshot a building manager can pull up and say, "How does my building compare with my regional average? My field office average? My regional target? And that CBECS 2003 database?" Which is what's in their right now.

The benchmarking system, which is the follow on for the web based certification system, also has a December 19, 2008 deadline. The energy managers are going to have to enter their energy usage data for each metered building that is a covered facility. And then once again there's the disclosure for each year and its previous year's info for tracking building performance. And this is the one that we already have a system that does this as well. That's EUAS

system. So once again we would be hoping that there would be some sort of – I mean that the plan is that there's definitely going to be a spreadsheet type format where you can upload your data right in and not have to have any duplication of that data entry into this new system.

This is a slide from Chris. But it just kind of goes over some of the benchmarking building types that we'd probably be considering in this new system. Recognizing the limitations for particular building types.

[End of Audio]